NEARLY FOUR YEARS IN OPERATION:

Program Executive Officer Land Systems Marine Corps Looks Ahead To The Future

By Scott R. Gourley

As the only Marine Corps Program Executive Office, PEO Land Systems is responsible for the management of eight Acquisition Category (ACAT) I and II weapon systems programs: Expeditionary Fighting Vehicle (EFV); Marine Personnel Carrier (MPC); Joint Light Tactical Vehicle (JLTV); Ground/Air Task Oriented Radar (G/ATOR); Common Aviation Command and Control System (CAC2S); Medium Tactical Vehicle Replacement (MTVR); Logistics Vehicle System Replacement (LVSR); and M777 Lightweight 155 mm Howitzer.

The PEO is organized as a separate command, reporting directly to the Assistant Secretary of the Navy for Research, Development and Acquisition. Additionally, the office retains integral relationships with Marine Corps Systems Command (MARCORSYSCOM), enabling the leveraging of infrastructure, competencies, and technical authority.

Characterizing his office as "a new or junior organization in many respects," William E. Taylor, a member of the Senior Executive Service (SES) and Program Executive Officer Land Systems Marine Corps, recently reflected on the organization's accomplishments to date as well as its directions for the future.

PEO's Beginning

"We are the first PEO within the Marine Corps and were 'stood up' only 3 1/2 years ago," Taylor explained. "And that 3 1/2 year journey is perhaps best described in terms of where we have come from and where we have matured in terms of capabilities.

"I stood up this office in January 2007," he began. "And my initial fundamental focus was on accruing and selecting the individual expertise that would enable the organization to effectively and efficiently do its primary job. So, the better part of at least that first year was spent going out and selecting the appropriate skill sets that I wanted resident within the staff and then recruiting the individuals who had competence in their subject matter expertise. Then, once I thought I had the appropriate skill sets and individuals aboard, I started looking at adding depth in areas where required."

An example of one of those recruits who possessed some critical skill sets can be found in Daniel Pierson, Deputy PEO Land Systems Marine Corps. Pierson's unique qualifications for recruitment included 25 years on Army acquisition programs and almost two years on the Joint Staff.

"The majority of my own experience is based on Naval Air Systems Command," Taylor said. "So I know aircraft. But after making the transition over to 'the ground side' of the Marine Corps, and knowing that the Marine Corps shares a lot of commonality with the Army, in standing up my staff I intentionally went out and sought as a deputy someone who had Army exposure and experience. So as my deputy I ended up recruiting Dan Pierson, a Department of the Army employee.

PEO's Priorities

"With a complete staffing foundation firmly established, about the second year, I started shifting focus in an effort to identify what we needed to do in supporting the program managers and their programs," he continued. "And what I found was that the programs were under-resourced. So we did a very robust study and came up with the right recipe for program staffing levels. That's where we spent the majority of our time that second year: right-sizing the program staffs.

Bill Taylor (left) and Dan Pierson (right) pose with Captain Pat Costello (USN), Program Manager, Common Aviation Command and Control System (CAC2S) at a PEO LS "All-Hands" quarterly-awards ceremony at Quantico, Va

Image courtesy PEO LS

S&T AND COST ESTIMATING

By Glenn W. Goodman, Jr.

The Marine Corps Program Executive Officer Land Systems' first Advanced Technology Investment Plan, published in October 2009, identifies and prioritizes the top technical issues across the board by the portfolio of eight PEO LS acquisition programs. The plan's aim is to identify focus areas for science & technology (S&T) investments, foster collaboration with other organizations to leverage resources, and support high-priority technology insertion into the eight programs to close warfighter capability gaps. "The goal is to make our S&T efforts relevant to the warfighter instead of having them occur in a vacuum," said Mike Halloran, the PEO LS S&T director.

Improving fuel efficiency, one of the identified S&T focus areas, provides a good example. "Our vehicle of choice in Afghanistan is the Medium Tactical Vehicle Replacement 7-ton truck," Halloran noted. "Because the MTVR is so reliable, we use it to do almost everything. As a result, it consumes 50 percent of the fuel used by Marine Corps vehicles on the battlefield. So if we could just achieve a 10 percent increase in MTVR fuel efficiency, we would save millions of dollars. It would also allow us to reduce the size of our logistics resupply convoys, which primarily consist of MTVRs hauling fuel and water," he said. "If we can save millions of gallons of fuel, we could probably take half the MTVR trucks out of a convoy and take a number of Marines out of harm's way."

A promising, yet simple, solution being tested by PEO LS and Marine Corps Systems Command, he said, involves installing an insulating material around the engine's air intake that cools the air going into the engine, which results in higher efficiency burning in the engine and greater fuel efficiency.

Another S&T focus area is increasing the power available on the battlefield so Marine units won't have to tow large numbers of trailer-mounted generators. An On-Board Vehicle Power variant of the MTVR with great potential is being tested. It uses the vehicle's engine to spin an integrated generator, producing exportable power for mobile command centers and many other applications.

Those are just two examples of how PEO LS is investing its technology dollars, particularly in the near term, to "Focus the Future Faster" and deliver improved capabilities rapidly to the warfighter.

PRICING PROGRAMS

Cost analysis and estimation is a key skill set in which PEO LS, with eight major acquisition programs within its portfolio, is bolstering its in-house competencies. Pricing programs accurately early on can help them to move forward smoothly in development and avoid delays that ultimately hurt the warfighter. Severe cost growth in defense acquisition programs has often resulted from underestimating the maturity of new technologies or the challenges involved in integrating them. Bill Taylor, the PEO LS, noted that, as a consequence, "We're now experiencing a dramatic increase in the number of independent cost estimates being required that are associated with the military component's and OSD's [the Office of the Secretary of Defense's] need to conduct continuous cost monitoring of major defense acquisition programs."

Recognizing that his program managers and staffs didn't have the expertise to properly scrutinize contractor or outside consultant cost estimates, Taylor hired Steve Pawlow in late 2008 to be the PEO's lead cost analyst and to build a capability for rigorous cost analysis for the first time within the Marine Corps' only PEO. "Under the 2009 Weapon Systems Acquisition Reform Act passed by Congress," Pawlow said, "there's an expectation that each major program must have one or more cost estimators." He is filling a total of 17 other cost analyst positions under him – three senior cost analysts at the PEO level and one cost analyst for each of the PEO's eight acquisition programs, with the exception of the high-visibility Expeditionary Fighting Vehicle program, which has seven cost analysts, and the Ground/Air Task-Oriented Radar program, which has two.

Pawlow is creating a set of common procedures and processes – in line with OSD rules and regulations – for doing cost analyses within the PEO. This includes working with Marine Corps Systems Command to develop a cost analysis manual that will provide a standard structured format for doing cost analyses.

The Honorable Ray Mabus, Secretary of the Navy, shakes hands with GySgt. Niceforo Mendoza, Human Factors and Operations specialist for the EFV Program Office in Woodbridge, Va., as Lt. Gen. Dennis J. Hejlik (middle), commanding general, II Marine Expeditionary Force (MEF) and Maj. Strack (left), head, Operations, Training and Evaluation Officer, EFV Program Office in Woodbridge, Va., look on during the Secretary's visit at Camp Lejeune, N.C., in June 2010. The EFV Program Office was conducting testing at Camp Lejeune during Secretary Mabus' visit.

"Then, in the third year, I got to the point where I was relatively satisfied with the adequacy of the job the office was doing, and I began 'expanding the aperture' – looking at how I should shape the total infrastructure around which the programs could thrive and focus on their primary roles of program management. In other words, I turned my attention to work hand-in-hand with our host, Marine Corps Systems Command, to make sure that the programs were being adequately supported in terms of engineering, logistics, contracting, finance, legal, etc. That's where we've been spending the majority of our time in this third year: ensuring that we have an adequate safety net around which those program managers can simply and purely focus on providing expert program management."

"We basically didn't exist just over three years ago," observed Deputy PEO Dan Pierson. "Now, three years later, not only is there a PEO stood up, but actively managing programs and successfully turning a number of them around. We are active participants in the acquisition community and, quite frankly, we are leading the way on a number of things."

Cost Estimation

At the end of the first three years, Taylor felt "the total package was in place," and it was time to "reassess competencies to identify any areas that might still lack some competencies between the skill sets resident on either the PEO staff or Marine Corps Systems Command."

That reassessment led to the current phase of PEO LS development, which is focusing on three identified areas: cost estimating; science and technology; and collaboration with the other services.

"I am already really pleased with our cost estimating efforts," Taylor said. "I would acknowledge that our efforts are still in their infancy there, but I am extremely satisfied with the services and capabilities that we already have resident on the staff in helping to facilitate pricing our programs correctly at the beginning and making sure that they are on a firm footing as they move forward. With several of our programs it was really critical that we had that capability available."

Pointing to CAC2S as "a prime example" of successful cost estimating, he said, "That success critically hinged on our ability to provide the cost estimating support that we were able to do this past year. So that program is now on firm footing as it moves forward. And about a year behind that our G/ATOR program is now taking advantage of that same cost estimating capability in moving forward. And I am very confident that we will do an adequate job for them as well."

Probability of Program Success DoN Standard

"One of the tools that we adopted early on when we established the PEO was the Probability of Program Success [POPS]," echoed Pierson. "It's a tool that was originally developed by the Army; then the Air Force took it to another level; and then we picked up on it and started using it to manage our programs. And it's basically a baseline way to manage programs with a similar view to measure how well a program is doing based on its life cycle. We not only adopted it in the PEO and started using it on our programs, but the Navy also received a few of our briefings and, before we knew it, the entire Navy adopted POPS."

Taylor said, "Science and technology is a badge of honor for the PEO as well. For example, last October I signed out an Advanced Technology Investment Plan, which had been developed by PEO LS S&T Director Mike Halloran. And we published a document that is the envy of most acquisition organizations. In the past, early S&T has always been extremely fruitful in terms of the things that have been researched and explored. Unfortunately, we have always fallen short in our abilities to make the transition handoff from research and development to developing hardware and delivering systems. There has been

Photo by PFC. Walter Marino, USMC

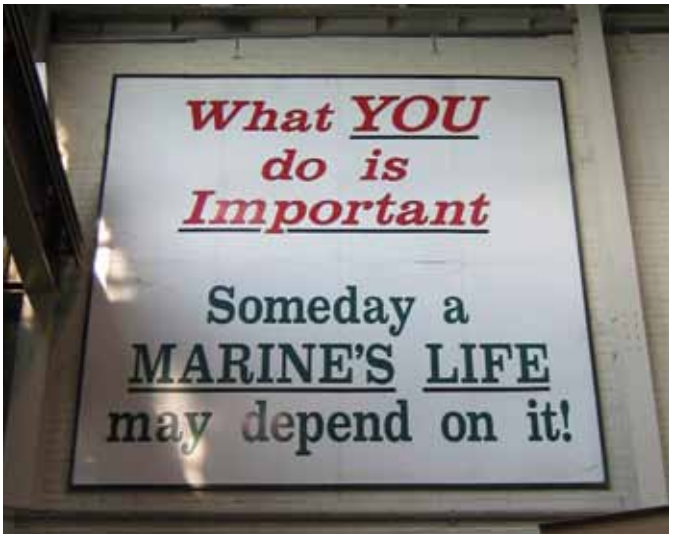

Image courtesy of PEO LS

a gap there. And that gap is where we are focusing our attention: the transition from early R&D to actual acquisition. Our focus is providing a path to where you can lay out a specific program's needs, the insertion points in their schedules, what dollars they need, and where and when you need to invest those dollars. Essentially it provides a technology roadmap that has been extremely valuable and warmly received."

Joint Center for Ground Vehicles

In terms of establishing world-class collaboration with the other services, Taylor pointed to the Joint Center for Ground Vehicles (JCGV) initiative that the PEO LS is pursuing at Detroit Arsenal with the U.S. Army's Tank-Automotive Research, Development and Engineering Center (TARDEC).

Since Detroit Arsenal is widely considered to be the Department of Defense "hub" or "center-of-mass" for ground vehicle development, PEO LS has begun to utilize the facilities and engineering expertise located in Detroit Arsenal and throughout the Army in support of programs as much as practical.

"One of our assigned programs, the Expeditionary Fighting Vehicle (EFV) was named in the 2005 BRAC (Base Realignment and Closure) language to be part of the stand up of a Joint Ground Vehicle Center of Excellence at Detroit Arsenal," recalled Pierson. "When Mr. Taylor and I looked at this language we both came to the same conclusion: Why just EFV? Why not do this right and include all USMC ground vehicle programs? Having a center of gravity in Detroit Arsenal just made perfect sense to us, leverage that investment made by the Army. The Marine Corps will never have the level of resources the Army does and must therefore look to the Army for certain types of support."

The Marine Personnel Carrier (MPC) program, as an example, will be the first start-to-finish program scheduled for the Joint Center of Excellence, given it is pre-Milestone (MS A) status. Other programs that will benefit from the arrangement include MTVR and possibly LVSR that will be establishing a System Integration Lab (SIL) in Detroit. Additionally, the Joint Light Tactical Vehicle (JLTV) is already a Joint Program and well into the Technology Demonstration (TD) phase.

Reflecting on the application of his prior experiences with Army programs, Pierson noted, "I worked the Army's Future Combat Systems (FCS) program for six years, which gave me great exposure and access to key organizations and the senior leadership. I am very much aware of the Army system/processes and all the key players. I am also familiar with where there is still work to be done in bringing the community together. I'm familiar with all of the 'rice bowls' of times past and present, but I'm focusing on the future."

Official USMC photo by Sgt. Jesse Johnson

Left: PEO LS has a Logistics Liaison from Marine Corps Logistics Command (LOGCOM), Albany, Ga., on staff. This sign is displayed at LOGCOM and underscores the importance of Logistics support to the Warfighter. **Above:** Combat Cargo Marines from 26th Marine Expeditionary Unit aboard USS *Kearsarge* measure the height of a 7-ton truck during a deployment onload off the coast of Onslow Beach, Camp Lejeune, N.C., Aug. 28, 2010. 26th MEU deployed aboard the ships of *Kearsarge* Amphibious Ready Group in late August, responding to an order by the Secretary of Defense to support Pakistan flood relief efforts.

How JCGV Will Work

"The key to making the Joint Center of Excellence work will be how we govern it," he said. "We must find a way to bring the stakeholders and decision makers together to make more informed decisions at the enterprise level, maximizing available resources and knowledge. Our involvement has been a catalyst towards making this happen, building from what the Army has already accomplished down this path over the past several years. We

Above: William E. Taylor (PEO) addresses Marine Corps leaders and guests attending the EFV SDD-2 Rollout Ceremony, 4 May 2010 at The National Museum of the Marine Corps, Triangle, Va. **Opposite:** Dan Pierson (Deputy PEO).

are causing folks to look ahead to what can be, vice reflecting on the problems of the past. The Navy and Marine Corps also have pockets of subject matter experts throughout the labs and ONR [Office of Naval Research] that can be brought to bear on problems. The off-road mission profile demanded by the Marine Corps, which is much more stringent than that of the Army, will also drive technology solutions that will benefit the Army systems. While the Marine Corps has some unique requirements from that of the Army, we cannot let that stand in the way of collaboration and more informed decision making across the services.

"Rather than Marine Corps programs standing up new facilities or investing in possibly redundant tool sets we will look to Detroit first to see if we can build upon the facilities and tools already in place across the Army labs. Detroit Arsenal is considered the hub or center-of-mass for ground vehicle development but we recognize the many other Army labs that are available as well that will also be tapped as required. We will establish linkages with the many other Army installations in a coordinated manner through the Joint Center such that individual Program Managers do not have to take the time to research where they can find the support they need," Pierson said.

"Our programs will invest and build upon the tools, people, and infrastructure associated with Detroit Arsenal as it relates to support of our programs," he continued. "We will not duplicate the capabilities that exist in Detroit. The Joint Center facilitates the enterprise governance. It is the key to moving forward. We will be strong advocates for bringing stakeholders and decision makers together to make more informed decisions and ensure adequate resources are applied to programs. We will foster sharing of information and lessons learned. One of the key tenets for the Joint Center should be valuing and recognizing the cultural and requirements differences between the Army and the Marine Corps.

"I do believe it is possible to design, develop, and field systems that support both services without sacrificing or sub-optimizing on those key requirements differences," he said. "This will be a key factor in building a strong working relationship and spirit of cooperation."

Asked to elaborate on the contributions that PEO LS will make to the center's support of America's Armed Forces, Pierson offered, "Consolidation of resources and efforts between the services will bring efficiencies. We must leverage the available resources of each service and look to

Photo courtesy PEO LS

build and improve upon what already exists vice duplicating these things. This PEO will assist and be a driving force for the creation of the enterprise governance process. I believe the Marine Corps' unique requirements will further the state of the art in off road mobility and lightweight armor. These are good attributes to have in any ground program.

Calling for "bridging the cultural divide" to achieve "better working relationships and outcomes," he added, "Marines and soldiers fight side by side in many cases and do so well. We must do the same back home as Army and Marine Corps acquisition civilians supporting them. The warfighter really doesn't care where a good piece of gear comes from as long as it serves his needs well. The 'not invented here' and 'rice bowl' mentality has no place in support of the warfighter. We need the best minds and efforts coming together to produce good systems and make informed decisions. The services working together will save money and provide better solutions. In my mind, saving dollars translates to having more money available for equipping the warfighter."

Pierson offered his assessment of the ground vehicle community as "very fragmented," attributing that fragmentation to "making it difficult to form consensus or resolve complex issues, such as survivability, because each individual program is acting in a vacuum. This is why there tends to be numerous 'independent' studies of everything under the sun. These studies cost a lot of money and most times are non-value-added to the warfighter. If we do a good job pulling the ground community together and governing at the enterprise level, looking at the portfolio of ground systems under development in a deliberate and meaningful way, we then begin to speak as one voice. Speaking as one voice I think is critical to regaining trust as we remove the normal biases from those operating in a vacuum or stovepipe. It should be a straightforward process for a senior leader to look to the ground community and get answers to questions that impact or cross multiple ground system programs. Standing up the Joint Center will put in place the system and processes to achieve a center of mass and a single voice.

"The PEOs own the programs," he stated. "So achieving that center of mass is pretty easy, in my mind. There are only three primary PEOs [Marine Corps PEO Land Systems, Army PEO Ground Combat Systems, and Army PEO Combat Support/Combat Service Support] and also Army PEO – Integration, which essentially was stood up after FCS was killed. They may not own platforms, but they are going to be a player in this. We're still not sure exactly to what extent, but they are going to be a player. So you have got four PEOs, along with the directors of TARDEC and TACOM [U.S. Army Tank-automotive and Armaments Command]. And when you bring all those people together you have the right group to start making some pretty heavy decisions across our fleet. It's not that hard to do and they are all willing to do it. We've briefed this and the senior levels in the Army are fully on board and supportive of this."

While program participants are already behaving as if the Joint Center of Excellence is fully operational, the reality is that it will take time to get the processes and personnel in place. But collaboration has already begun at all levels on existing programs and the center expects to be operating with the governance and necessary agreements in place by late 2011.

A Bright Future

As Pierson looks into the future, he identifies a number of challenges stemming from lessons learned in ongoing combat operations.

"Lessons learned are kind of challenging at this point, because I'm not sure we are learning the right things," he began. "What I mean by that is, if you look at where we are being driven to, like an MRAP [Mine Resistant Ambush Protected] vehicle, consider the weight and size of the MRAPs in comparison to the lessons we have learned over the years with the M1 tank. If these vehicles are so heavy and massive that you can't get to the fight in a timely manner, then I am not sure we are learning the right lessons out of this fight, especially for the Marine Corps, where an expeditionary nature and ability to get to the fight is key. Obviously we do want to protect the troops. We want them to be as survivable as possible and IEDs have upset that desire, causing us to do a number of armor mod kits that 'up-weight' the vehicles and slow them down. We also want to be more energy efficient but we have these vulnerable tankers all over the battlefield because we have such high fuel demands for vehicles growing exponentially in weight."

"That's the environment we're in now, and I don't see a clear path yet to sanity reigning again," Pierson said. "We certainly do want to protect the troops. But we have to be mobile. That's going to be the dilemma that we have to come to grips with as we move forward with any new vehicle design, whether it's MPC for the Marine Corps, GCV [Ground Combat Vehicle] for the Army, or any other program. These are major issues that are going to shape our fleet futures and it's just another reason why I think the Joint Center of Excellence and having a single voice is so critical."

"My final thought is this: 3½ years ago the standup of the first Marine Corps' PEO was probably considered 'a grand experiment' by some," Taylor concluded. "However, I'm going to go out on a limb and speculate that it is no longer viewed as a grand experiment but rather as a successful model that is here to stay."

Photo courtesy PEO LS